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APPENDIX 2

Two simplified forms (**Equations (1B)** and **(2B)**) of **Equation (1)** were evaluated by means of 100,000 randomized computations of **Equations (1)**, **(1B)**, and **(2B)** using specific values either reported or measured on MWCs: the *RP* values ranged from 1 to 3 mm [1–4]; the front wheel radii ranged from 30 to 100 mm and their moments of inertia ranged from 0.005 to 0.002 kg.m²; the rear wheel radii ranged from 260 to 330 mm and their moments of inertia ranged from 0.1 to 0.2 kg.m²; the wheelbase ranged from 300 to 450 mm; the COM height of the loaded MWC ranged from 500 to 700 mm; the total mass ranged from 75 to 100 kg [5]; and the fore-aft mass distribution ranged from 30 to 60 percent of the mass distributed on the front wheels [3].

$$\gamma_G = -mg \frac{\left(\frac{\lambda_f d_r}{r_f w_b} + \frac{\lambda_r d_f}{r_r w_b} \right)}{\left(m + \frac{I_f}{r_f^2} + \frac{I_r}{r_r^2} \right)} \quad [\text{Eq. 1B}]$$

$$\gamma_G = -g \left(\frac{\lambda_f d_r}{r_f w_b} + \frac{\lambda_r d_f}{r_r w_b} \right) \quad [\text{Eq. 2B}]$$

The results of these simulations showed errors with respect to **Equation (1)**, which remained at around 3.5 percent when using **Equation (1B)** and around 3.3 percent with **Equation (2B)**.

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